

Final Draft
Clean Water Act Section 303(d) List of Impaired
Waters
2002 Update

California Regional Water Quality Control Board
San Diego Region
March 8, 2002

***Board Members of the California Regional Water Quality Control Board,
San Diego Region have not approved this document***

**Draft Clean Water Act Section 303(d) List of Impaired Waters
2002 Update**

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Dedication

This update to the
Clean Water Act Section 303(d) List of Impaired Waters
is dedicated to the memory of

Greig Peters

His knowledge, wisdom and passion for our Region's waters were instrumental in preparing this and many past updates to the 303(d) list.

He is deeply missed as a scientist, advocate for the environment and friend to many.

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Executive Summary

A summary of the recommended additions and modifications resulting from the 2002 update to the Section 303(d) list can be found in Table 3.

Section 303(d) of the federal Clean Water Act requires States to identify waters that do not meet water quality standards or objectives and thus, are considered “impaired.”

Once listed, Section 303(d) mandates prioritization and development of a Total Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

The Section 303(d) list of impaired waters is to be updated every two years and submitted to the United States Environmental Protection Agency (USEPA) for approval. This report contains the draft 2002 update to the list of impaired waters and the listing methodologies for the California Regional Water Quality Control Board, San Diego Region (Regional Board). The current Section 303(d) list of impaired waterbodies was developed in 1998. The San Diego Region is listed for 34 waterbodies and 22 different types of pollutants.

Staff evaluated 58 unique sets of data and information received from public solicitation, other governmental agencies and from sources within the Regional Board. Analysis was generally limited to data for the period of July 1997 to May 15, 2001. In making listing decisions, staff utilized general guidelines developed in 1998 (ad hoc workgroup, 1997) for the 303(d) listing process in California. However, no prescriptive or rigid criteria were used in evaluating the data. In general, a weight of evidence approach was utilized to support each listing. Waterbodies and pollutants were only listed if conclusive evidence exists to show violation of the applicable water quality objectives. A waterbody listing was defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. The current draft list update recommends the addition of 18 new waterbodies and 9 new pollutants. Also recommended is the addition of 5 new pollutants to previously listed waterbodies and the change in the extent of impairment for 18 previously listed waterbodies. Combining the 1998 and draft 2002 list produces 51

listed waterbodies with 30 unique pollutants. One de-listing is recommended. The combined list of waterbodies can be found in Table 4.

For the 2002 listing update, the State Water Resources Control Board (State Board) will formulate and adopt a single statewide list of impaired waters. Regional Boards have solicited and analyzed data and made recommendations to the State Board. The 2002 draft list was presented to the Regional Board members on October 24, 2001 as an informational item only. No formal action was required or taken. The draft list was submitted to the State Board at the end of October. The Regional Board held an informational public workshop on December 5, 2001. On a regional level, public comments were accepted and considered. Numerous revisions were made to the October draft list as a result of further data review and public comments. Noteworthy changes include the de-listing of beaches along the ocean shoreline of Coronado, the modification of criteria used for listing beach and bay shorelines for bacterial contamination and consideration of the temporal component of many water quality objectives. The remaining changes were minor and primarily add clarity. The revised draft list, dated March 2002, will be sent to members of the Regional Board and to the State Board. This final draft version has considered all public comments to date, which include written comments as well as comments received at the public workshop.

Changes and updates can continue to be made and forwarded to the State Board through the formal review period. In the winter and spring of 2002, the State Board will be addressing public comments, conducting a public workshop(s) and conducting formal Public Hearings on the single, statewide list of impaired waters. In early spring, the State Board will consider adopting the statewide Clean Water Act Section 303(d) list of impaired waters. The adopted list will be submitted to USEPA in the form of the State's biennial report on water quality.

Introduction

A summary of the recommended additions and modifications resulting from the 2002 update to the Section 303(d) list can be found in Table 3.

Section 303(d) of the federal Clean Water Act (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits and thus, are considered “impaired.” States are required to compile this information into a list and submit it to the United States Environmental Protection Agency (USEPA) for review and approval. This list is known as the Clean Water Act Section 303(d) list of impaired waterbodies. Section 303(d) of the Act establishes the total maximum daily load (TMDL) process to provide more stringent water quality-based controls when technology-based controls are inadequate to achieve State water quality standards. As part of the listing process, the impaired waterbodies are prioritized for subsequent development of TMDLs. A TMDL is a tool for attaining state water quality standards and is based on the relationship between pollution sources and in-stream water quality conditions of impaired waterbodies. The TMDL establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for States to establish water quality-based controls. These controls should provide the pollution reduction necessary for a waterbody to meet water quality standards.

For the 2002 listing update, the State Water Resources Control Board (State Board) will formulate a single statewide list of impaired waters. Regional Boards solicited and analyzed data and made recommendations to the State Board. On October 24, 2001 Regional Board members were presented the draft Section 303(d) list of impaired waters as an informational item only. No formal action was required or taken. The draft list was submitted to the State Board at the end of October. On a regional level, public comments were accepted and considered. Numerous revisions were made to the October draft list as a result of further data review and public comments. Noteworthy changes include the de-listing of beaches along the ocean shoreline of Coronado, the modification of criteria used for listing beach and bay shorelines for bacterial contamination and consideration of the temporal component of many water quality objectives. The remaining changes were minor and primarily add clarity. The revised draft list, dated March 2002, will be sent to members of the Regional Board and to the State Board. This final draft version has considered all public comments to date, which

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There has been increased public attention and scrutiny of water quality assessment and of the 303(d) listing process since the 1990's. Therefore, sufficient documentation and explanation of the process and rationale used to update this list is an essential component of the process. The California Regional Water Quality Control Board, San Diego Region (Regional Board), on behalf of the State Board, has compiled a draft list of recommendations for updating the Regional Board's 303(d) list of impaired waterbodies. This list includes new listings, modifications to the extents of impairments and one de-listing. The following provides a description of the process that led to these recommendations.

Background

California's current Section 303(d) list of impaired waterbodies was developed in 1998 and contains 509 waterbody/pollutant combinations. There are 34 waterbodies within the San Diego Region currently listed (Table 1). A waterbody listing was defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. For example, the Pacific Ocean Shoreline is listed several times, with each unique listing defined by hydrologic boundaries. If more than one waterbody falls within one hydrologic boundary, the name of the body or segment of water further defines the listing. These waterbodies include 15 areas of Pacific Ocean shoreline, 10 lagoons and estuaries, 6 rivers and creeks, 2 bays and 1 lake (Figure 1). The pollutants causing impairments vary widely and include 21 different types. The most common pollutant / stressor was bacteria. Other common pollutants were nutrients, pesticides, low dissolved oxygen, metals, toxicity, degraded benthic communities and sedimentation.

Evaluation of all readily available data and information, which showed evidence of impairment, was the basis for previous updates to the 303(d) list of impaired

waterbodies. In 1998, this process was based on general listing guidance provided by both USEPA (1997) and the Ad Hoc Workgroup (1997). This same guidance, in addition to other available resources, which includes other regional assessment methodologies, other state listing guidelines, and draft federal guidelines were used in preparing recommendations for the 2002 303(d) list update. These documents offer varying degrees of guidance, but do not provide rigid or prescriptive criteria or methods to develop the current draft list recommendations. Such prescriptive criteria do not currently exist. As discussed in further detail in the methodology section of this report, a weight-of-evidence approach was applied in evaluating the information and making recommendations.

Information/Data Collection

Federal regulations (40 CFR 130.7(a) and (b)) require States to assemble and evaluate all existing and readily available water quality-related data and information when updating their 303(d) list of impaired waterbodies. The Regional Board complied with this requirement in several ways; public solicitation of information and data, compilation of applicable “in-house” information and data, assemblage of other applicable state and federal data/information/studies, and research of other water-quality related studies, projects and/or monitoring efforts completed or ongoing in the Region.

Public Solicitation

The Regional Board initiated its public solicitation for water quality-related data and information on March 7, 2001. A general letter requesting information (Appendix A, Item 1), that would be useful and pertinent to the process, was sent to the entire Regional Board agenda mailing list. This letter provided background on the list update process, an explanation of its purpose, requirements for submittals and contact information for staff working on the project. Also, a notice of the solicitation was published in local papers in each of the three counties within the Region (Appendix A, Item 2). In addition, a web page was added to the Regional Board’s website providing the same information (Appendix A, Item 3). The letter and notice included a deadline of May 15, 2001, established by the State Board, to receive submittals. The solicitation also stated that only information and data generated since July 1997 would be considered in the listing process. The State Board also established this deadline as a practical consideration based on the assumption that any earlier data and information would have been reviewed during the preceding list update.

Public Participation

During the solicitation process, the Regional Board conducted two public workshops on April 4 and May 3, 2001. The first workshop was publicly noticed as described above. Approximately fifteen representatives from municipalities, environmental organizations and interested members of the public attended. At the request of members of the industrial community, who did not attend the first workshop, a second workshop was held and was attended by approximately twenty people. The same presentation was given at both workshops. The purpose of these workshops was to encourage interested individuals and parties to submit information and data to be used in updating the impaired waterbodies list and to encourage ongoing submittal of information throughout the year for use in future assessments. Another purpose was to provide information regarding the Regional Board's process in updating the list and the basis for practical deadlines. Finally, the workshops were held to answer questions and receive input from the public in an attempt to improve the list update process.

In addition to the overall process description, schedule, and information request, some of the topics highlighted at the workshops by the Regional Board included:

- ◆ State Board preparing the Statewide 303(d) list update based on recommendations provided by the regional boards
- ◆ State Board conducting formal public hearings and comment response sessions, as opposed to individual Regional Board hearings
- ◆ Allocating more staff and resources to the list update process
- ◆ Regional Board's identifying past deficiencies, increasing focus on addressing ambient monitoring needs and expanding the Surface Water Ambient Monitoring Program (SWAMP)
- ◆ Intense scrutiny of data validity and evaluation in list update.

Following the Regional Board's informational presentation, the workshop attendees' comments, concerns and discussion revolved around the following:

- ◆ Criteria used for listing/de-listing and the need for statewide consistency
- ◆ Consequences of listing and TMDL development
- ◆ Other, more appropriate and expedient mechanisms for correcting impairments

- ◆ Land use planning issues and potential for anticipated impairments
- ◆ Coastal impacts and beach closure data
- ◆ Increased citizen monitoring efforts and specific locations for focusing their efforts.

Public involvement continued after the Regional Board prepared the draft list of impaired waterbodies. During the week of October 22, 2001, a notice (Appendix A, Item 4) was sent to the Regional Board's agenda mailing list, announcing the posting of the draft 2002 update and a subsequent public workshop to be held on November 29, 2001. The draft list was also posted on the Regional Board's website. The revised draft Clean Water Act Section 303(d) List of Impaired Waters, 2002 Update was presented at the October 24, 2001 Regional Board meeting as a status report / informational item that required no formal Board action. The draft list was submitted to the State Board on October 31, 2001.

On November 5, 2001, a notice was sent to the agenda mailing list announcing a date change to December 5, 2001, for the scheduled public workshop (Appendix A, Item 5). A form was provided for comments, questions, and concerns (Appendix A, Item 6). It was stated that comments received in writing by November 28, 2001 would be given priority at the workshop. On November 27, 2001, a notice to stakeholders was sent in order to bring attention to the recent release of the 303(d) list update (Appendix A, Item 7). This letter urged the public to be involved in the list update process, and again announced the importance of attending the informal public workshop.

The public workshop was held on December 5, 2001, approximately 30 days after the posting of the draft list for public review. Approximately 70 people attended. The workshop provided information on the process involved in creation of the Section 303(d) List, the waterbodies and pollutants listed and gave the public a chance to comment on the draft list. The Regional Board specifically addressed each comment received in writing by November 28, 2001 and provided a forum for verbal questions and comments on each topic. Additional written and verbal comments were also received. The workshop was documented on videotape.

The draft list has been appropriately revised due to further data review, public comments and from the public workshop. The revised draft, dated February 2002, reflects all public

comments received to date. The changes will be sent to the SWRCB and are summarized on the accompanying errata sheet. Changes can continue to be made and forwarded to the SWRCB through the formal review period held this winter. All dates pertinent to public involvement can be seen in the Public Participation Timeline (Appendix A, Item 8). All public comments are part of the administrative record.

Role of State Board in Public Process

The State Board will formulate a single, statewide draft Section 303(d) list based on the recommended draft list received from each Regional Board. This winter, the State Board will conduct a full formal public review and comment period, develop written responses to comments, conduct a public workshop(s) and conduct a public hearing(s) at which the State Board will consider adoption of the draft statewide 303(d) list. The statewide list will then be submitted to the USEPA in the form of the State's biennial report on water quality. This information will in turn be submitted by USEPA to the United States Congress.

Governmental Agency Data Request

In addition to the solicitation described above, the Regional Board also researched and contacted local, state and federal agencies to obtain information and data for the list update. Though many of these entities are on the Regional Board's mailing list and therefore received the solicitation letter, they were also directly contacted individually by Regional Board. Agencies and sources contacted/consulted include:

- ◆ Department of Pesticides & Regulations
- ◆ Department of Toxic Substance Control
- ◆ Department of Fish and Game
- ◆ Department of Forestry & Fire Protection
- ◆ Department of Water Resources
- ◆ US Department of Fish & Wildlife Services
- ◆ US Geologic Survey Department
- ◆ Army Corps of Engineers
- ◆ Southern California Coastal Water Research Project
- ◆ US Marine Corps Camp Pendleton
- ◆ US Navy SPAWAR
- ◆ Cities of San Diego, Encinitas and Escondido

- ◆ University of San Diego
- ◆ San Diego State University

Most of these agencies and/or universities were responsive, although not all had water quality information or data for this Region. A complete list of the data and information received is summarized in Table 2.

Regional Board Data Review

The Regional Board assembled and reviewed many sets of in-house water quality data considered applicable for the 2002 Section 303(d) list update. This included National Pollutant Discharge Elimination System (NPDES) discharge monitoring data. Data from up and downstream receiving waters, collected by the discharger, was reviewed to determine impacts on the waterbody, as opposed to making determinations based on end-of-pipe effluent violations. Regional Board review also included storm water monitoring data submitted annually by city and county agencies within the Region. Finally, special studies conducted either by the State Board or the Regional Board, in conjunction with other agencies or by other agencies, and/or conducted by other groups and then submitted to the Regional Board (e.g. Supplemental Environmental Projects, 319(h) grant projects, etc.) were also reviewed. All reviewed data is listed in Table 2.

Types of Data

As described previously, the federal Clean Water Act mandates that States evaluate all existing and readily available information in updating the list of impaired waterbodies. The Regional Board reviewed physical and chemical water quality parameters. Examples of physical parameters include temperature, turbidity and pH. Chemical parameters assessed include both organic (pesticides, benzene, MTBE, etc.) and inorganic (nitrate, phosphate, metals, etc.). Additionally, aquatic life tissue samples were examined in an effort to detect problematic conditions associated with poor water quality. Data also consisted of non-quantitative items, including photographs, newspaper articles and narrative testimonials. Table 2 contains the complete list of reviewed data and the applicable waterbodies. These data sets were the basis for recommendations for changes to the 1998 Section 303(d) list.

Listing Factors

The general factors used by the Regional Board to recommend additions and changes to the 1998 Section 303(d) list of impaired surface waters within the San Diego Region

are contained in the 1998 Clean Water Act Section 303(d) Listing Guidelines for California (August 11, 1997) (hereafter referred to as “Listing Guidelines”). The Listing Guidelines were developed by an ad hoc workgroup of Regional Board, State Board, and USEPA staff in 1997 and are shown below. The guidelines do not contain specific criteria for listing or de-listing (e.g. minimum number of samples, frequency of exceedances, degree of exceedances, etc.). These guidelines contain only general concepts. Furthermore, no such specific criteria currently exist. The following items were taken into consideration for evaluation / listing purposes:

- ◆ Effluent limitations or other pollution control requirements [e.g., Best Management Practices (BMPs)] are not stringent enough to assure protection of beneficial uses and attainment of SWRCB and RWQCB objectives, including those implementing SWRCB Resolution No. 68-16 “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (1968).
- ◆ A fishing, drinking water, or swimming advisory is currently in effect, indicating water quality impairment. This does not apply to violations of existing Waste Discharge Requirements (WDRs) or NPDES permits. In general, adding a waterbody to the Section 303(d) list focuses on impairment of water quality and not on violations of discharge permits. If enforcement actions are currently underway that would eliminate the impairment, the affected waterbody was not placed on the 303(d) list.
- ◆ Beneficial uses are impaired or are expected to be impaired within the listing cycle (i.e., in next two years). Impairment is based upon evaluation of chemical, physical, or biological integrity. Qualitative and quantitative assessment of physical/chemical monitoring data, bioassay tests, and/or other biological monitoring will determine impairment. Applicable Federal and State criteria and statewide and Regional Water Quality Control Plans determine the basis for impairment.
- ◆ The waterbody is on the previous Section 303(d) List and either: “monitored assessment” continues to demonstrate a violation of objective(s) or “monitored assessment” has not been performed.
- ◆ Data indicate tissue concentrations in body parts of fish or shellfish exceed applicable tissue criteria or guidelines. Such criteria or guidelines may include State Board Maximum Tissue Residue Level values, Food and Drug Administration Action Levels, National Academy of Science Guidelines, and United States Environmental Protection Agency (USEPA) tissue criteria for the protection of wildlife.

De-listing Factors

Water bodies may be removed from the list for specific pollutants or stressors if any one of these factors is met:

- ◆ Objectives are revised (for example, a site-specific objective is established), and the exceedance is thereby eliminated.
- ◆ A beneficial use, which is not an existing use, has been removed or a beneficial use has been de-designated after USEPA approval of a Use Attainability Analysis, and the non-support issue is thereby eliminated.
- ◆ Faulty data led to the initial listing. Faulty data includes, but is not limited to typographical errors, improper quality assurance/quality control (QA/QC) procedures, or limitations related to the analytical methods that would lead to an improper conclusion regarding the water quality status of the water body.
- ◆ It has been documented that the objectives are being met and beneficial uses are not impaired based upon an evaluation of available monitoring data. This evaluation should discuss foreseeable changes in hydrology, land use, or product use and describe why such changes should not lead to future exceedance.
- ◆ A TMDL has been approved by the USEPA for that specific water body and pollutant (40 CFR 130.7(b)(4)).
- ◆ There are regulatory control measures in place, which will result in attainment of water quality standards and protection of beneficial uses. Control measures include permits, enforcement orders and Basin Plan requirements, which are enforceable and include a time schedule (see 40 CFR 130.7(b)(1)(iii)).

Water Quality Objectives

Regional Board evaluated all readily available information generated after July 1, 1997 and before May 15, 2001 as requested by the State Board, in preparing recommendations to the 2002 Section 303(d) list. When possible, the data was compared against appropriate water quality standards or objectives. Standards and objectives were only applied if appropriate to the beneficial uses designated for that waterbody by the Basin Plan (SDRWQCB, 1994). For example, drinking water standards were only applied to waterbodies designated for Municipal and Domestic Supply. In general, the following hierarchy was used in evaluating data relative to applicable water quality standards or objectives.

- ◆ Applicable numeric water quality objectives contained in the Water Quality Control Plan for the San Diego Basin 9 (SDRWQCB, 1994). These values were often site and use specific. This includes maximum contaminant levels (MCLs) for inorganic chemicals, organic chemicals, pesticides and radioactivity set forth in the California Code of Regulations (CCR), Title 22 and for trihalomethanes as set forth in the CCR, Title 40. These MCLs are incorporated by reference in to the Water Quality Control Plan for the San Diego Basin 9 (SDRWQCB, 1994). This incorporation is prospective, and includes future changes to the incorporated provisions as the changes take effect. This incorporation includes both primary and secondary MCLs.
- ◆ Water quality objectives contained in the California and National Toxics Rule (Federal Register, 2000). Standards were only applied if applicable beneficial uses were designated by the Basin Plan (SDRWQCB, 1994) for that waterbody.
- ◆ Criteria developed by the State Board, including the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, and the California Ocean Plan (SWRCB, 2000; 1997).
- ◆ Criteria developed by the USEPA, California Department of Fish and Game, the California Department of Health Services, United States Food and Drug Administration and the National Academy of Science.
- ◆ Criteria developed in the California Code of Regulations, Title 17 for bacteriological standards (State of California, 2001).

Narrative water quality objectives are also contained in the Basin Plan and were applied wherever appropriate. Their interpretation and application were assessed on a case by case basis, using a weight of evidence approach and best professional judgement. If no applicable standards or objectives could be found, numeric data was summarized (mean and total number of samples). In cases of photographic or narrative information, the data was reviewed and considered as part of the weight of evidence for that waterbody.

Evaluation Methods

Regional Board reviewed each piece of information and/or data and prepared a summary fact sheet for each data set / waterbody combination. These fact sheets can be found in Appendix B. The Regional Board used a weight of evidence approach,

evaluating all available waterbody-specific data, in recommending changes for the 2002 Section 303(d) list of impaired waterbodies. While one set of data may not have been rigorous enough to show impairment, two or more sets of data showing the some level of impairment may have been sufficient to support Section 303(d) listing. Placing a waterbody on the 303(d) list implied only that sufficient information exists to consider at least one segment of the waterbody to have exceeded objectives for at least one significant period of time. If there is a temporal component to a water quality objective, the time constraint was applied appropriately.

The nature and quantity of the data was a consideration. As previously discussed, there are no specific guidelines or requirements for a minimum number of sampling events, data points or frequency of exceedances to declare a waterbody impaired. These specific criteria do not currently exist. In general, more data was required to interpret environmental results that are specific to time and geography. This type of data would include water chemistry concentrations that describe conditions at a specific time and place. Less data was needed to make a determination based on environmental results that serve as integrators over space or time. This type of data would include pollutant concentrations in aquatic animal tissue that has accumulated over time as the animal has moved about its geographic range. For example, more water column chemistry data was generally needed to determine impairment than fish tissue chemistry data.

When possible, averaging of data was utilized to assess water quality trends over time in comparison to objectives. A mean or median value that exceeded the objective was considered more evident of impairment than individual exceedances. In particular, a median value above the water quality objective would demonstrate that more of the data was above the objective than below. Mean values above water quality objectives were also considered to carry more weight of impairment than individual exceedances.

The degree to which an objective was exceeded was also a consideration. Values that exceeded the objective by orders of magnitude carried more weight than a value just above the objective. If the data that exceeded the water quality objective was barely above the objective, no Section 303(d) listing was recommended. Only if a sufficient percentage of the data were well above the objective, would a listing be considered. Again, no minimum number of samples was required. Section 303(d) listing only

required evidence of impairment for one significant period of time, unless otherwise specified by a temporal component of a water quality objective. What constituted a significant period of time was determined on a case by case basis using best professional judgement while considering the nature of the pollutant, the designated beneficial uses of the waterbody and the overall sensitivity of the receiving water.

The rigor of evidence used to recommend that a waterbody be listed was ultimately a judgement decision by the Regional Board. Each waterbody and pollutant combination was considered on a case-by-case basis by evaluating all evidence pertaining to the situation. Sufficiency of evidence was a judgement decision that was unique to each listing recommendation. The evidence and basis for each listing is contained in Fact Sheets unique to each listed waterbody. These Fact Sheets are in Appendix B.

An example of data evaluation that led to a listing recommendation is found in the evidence of elevated phosphorus concentrations in Cloverdale Creek. Data was received from the City of San Diego's water quality lab and deemed to be reliable. Eight data points were reviewed, 1 each in April, May and June of 1999 and 4 during February and March of 2000. Each data point was compared against the appropriate water quality objective and all 8 exceeded the numeric concentration objective. Therefore, the water quality objective was exceeded for more than 10% of the time during a one-year period. The mean and median were calculated and were also found to exceed the appropriate objective. This amount and quality of information was deemed sufficient to recommend this creek as impaired for excess phosphorus. This is only an example of the process that led to a listing recommendation. None of the data parameters in this example should be viewed as rigid criteria for 303(d) listing.

It was kept in mind that a decision to list does not require the same certainty that is applied when determining violations of permit conditions. Constructing the list is not a regulatory action. It is an informational and administrative exercise that prioritizes work and highlights problem locations. As such, best professional judgement was a sufficient basis for listing. What is necessary is a reasonable rationale to support the listing or de-listing, and documentation of the information relied upon to reach that conclusion. All relevant data and supporting rationale are included in this staff report (Appendix B). The regulatory actions associated with listing come as a response to the list. Total Maximum

Daily Loads (TMDLs), enforcement actions, or other means of resolving the non-attainment condition are the regulatory instruments.

Development of a TMDL “Problem Statement” (and subsequent TMDL components) is the more appropriate mechanism to evaluate data in a more rigorous manner and to determine a stronger, clearer, scientific basis for impairment. This more rigorous assessment is performed at a future date. If the problem can be confirmed and clearly defined, Regional Board proceeds with TMDL development. If the problem remains unclear or there does not appear to be adequate data to proceed with TMDL development, additional monitoring can be scheduled at this point or at any point during TMDL development to fill data gaps or improve available information. If, after collecting adequate data, it is determined that there is not a significant water quality problem, the waterbody can be de-listed.

Regional Board evaluation methods were established to allow consideration of all available information and to make recommendations that were defensible with credible evidence. Regional Board’s weight of evidence approach allowed small data sets and those with no documented quality control or quality assurance to be considered during the decision making process. Sample collection protocols, quality control (QC) and quality assurance (QA) information was requested in the general data solicitation letter and with each individual request. In almost all cases, this information was not submitted. If this data was submitted, it was reviewed for appropriateness of methods of collection and analysis. If QC and QA information was not received, some assumptions were made. It was assumed that most permit compliance data is mandated to follow strict guidelines for data collection and analysis. Other types of data and sources were evaluated on an individual basis. Often, these other information submissions had no quality control or assurance. These types of data were considered to carry significantly less weight in the weight of evidence approach. No data was excluded.

Regional Board took a conservative approach to listing and de-listing impaired waters. Sufficient evidence and reasonable rationale were necessary for placing a waterbody on, or removing from, the Section 303(d) list of impaired waterbodies. If the evidence was not sufficient, listed waterbodies remained on the list and potentially new waterbodies

were not Section 303(d) listed, but were targeted for further investigation. These constituents and waterbodies can be found in Table 5.

Bacterial Data Evaluation

Two different types of bacterial data were reviewed. The first type was raw data in the form of concentration values. This data was restricted to inland surface waters (with the exception of Coronado Beach) and was reviewed in the same manner as the other types of raw data discussed above. However, instead of calculating arithmetic means as described above, the log mean was calculated for bacterial data. This was done to prevent one or two high values from giving over-estimates of levels of contamination, which would be the case with the use of an arithmetic mean. Listing recommendations were based upon an analysis of each waterbody and its associated bacterial data as compared to the appropriate water quality objectives. Each case was reviewed on an individual basis using the weight of evidence approach and best professional judgement to determine if sufficient evidence for listing exists.

The second data type was in the form of beach closure and general advisory reports that were provided by the San Diego County Department of Environmental Health (DEH) and the Orange County Health Care Agency. These reports specify the number of days per year that a beach / bay segment had known exceedances of applicable bacterial standards or objectives, as indicated by general advisories or beach closures. Both advisories and closures are based on high bacterial concentrations as revealed by routine monitoring, or resulting from a known sewage spill. The criteria for closure and general advisory reporting are found in guidance provided by the California Department of Health Services (DHS) and are identical to the Basin Plan and Ocean Plan water quality objectives for total and fecal coliform and enterococci. Therefore, these occurrences are considered to be evidence of an exceedance of a bacterial water quality objective. The Regional Board's evidence supporting 303(d) listing and the significance of advisories and closures are discussed in Appendix B, pages B-69 to B-74.

Beach closure and advisory information, used to determine impairment, was limited to ocean and bay coastal areas. Segments were recommended for Section 303(d) listing if applicable water quality objectives were exceeded for more than 10 days per year. The days did not have to be consecutive and the season of the bacterial exceedance was not a consideration in the listing decision. However, the data reviewed was representative

of all seasons of the year. The choice of >10 days per year was based upon best professional judgement and is believed to be indicative of water contact beneficial use impairment due to elevated bacterial concentrations.

TMDL Priority Ranking

A priority ranking is required for listed waters to guide TMDL planning pursuant to 40 CFR 130.7. TMDLs are ranked into high, medium and low priority categories based on:

- ◆ Waterbody significance (such as importance and extent of beneficial uses, threatened and endangered species concerns and size of waterbody)
- ◆ Degree of impairment or threat (such as number of pollutants/stressors of concern, number of beneficial uses impaired, degree of exceedance over the water quality objective and the frequency of exceedance).
- ◆ Conformity with related activities in the watershed (such as existence of watershed assessment, planning, pollution control and remediation, or restoration efforts in the area).
- ◆ Potential for beneficial use protection and recovery.
- ◆ Degree of public concern and involvement.
- ◆ Availability of funding and information to address the water quality problem.
- ◆ Overall need for an adequate pace of TMDL development for all listed waters.
- ◆ Other water bodies and pollutants have become a higher priority.

It should be noted that the criteria can be applied in different ways to different water bodies and pollutants. For example, a water body may be severely impaired, but if there is little likelihood of beneficial use recovery than a lower priority might be given.

Results of Data Assessment

The final draft results of the Regional Board's assessment of surface waters are presented in Tables 3 and 4. A waterbody listing is defined first by hydrologic boundaries, and then by individual bodies or segments of water within those boundaries. For example, the Pacific Ocean Shoreline is listed several times, with each unique listing defined by hydrologic boundaries. Also, the 901.14 HSA hydrologic boundary is listed twice, with each unique listing containing a different waterbody. This report recommends the addition of 18 new waterbodies and 9 new pollutants to the Section 303(d) list (Figure 2). Also recommended is the addition of 5 pollutants to previously

listed waterbodies and changes in the extent of impairment for 1 previously listed inland waterbody and for 16 previously listed beach and bay coastlines. All changes in the extent of impairment pertain to waters listed for bacterial contamination. One de-listing is recommended. Table 3 shows recommended additions, deletions and modifications to the updated draft Section 303(d) list for 2002, including reservoirs, lagoons, rivers, harbors and coastal and bay shorelines. The specific pollutant is described as well as the rationale for listing, source of the information and scheduling for TMDL development. Individual Fact Sheets (Appendix B) summarize the pertinent information for each de-listed or newly added Section 303(d) listed waterbody, including a summary of data reviewed.

Table 4 shows the combined existing 1998 Section 303(d) listed waterbodies, as well as the new recommended draft 2002 additions. The single recommended de-listing from the 1998 list is not included in Table 4. A Fact Sheet supporting the de-listing decision is included in Appendix B, pages B-62 to B-64. Older listings (prior to 1998) are included in the 1998 list. When the proposed 2002 draft list is ultimately adopted by the State Board, the final 2002 Clean Water Act Section 303(d) list of impaired waters for the California Regional Water Quality Control Board, San Diego Region will consist of the 1998 and 2002 lists combined. In total, for the San Diego Region there will be 51 listed waterbodies, and 30 different pollutants on the combined list.

Constituents \ Waterbodies of Potential Concern: Waterbodies Requiring Additional Investigation & Data

Data for several waterbodies and constituents was reviewed that did not lead to a 303(d) listing in the 2002 update. The pollutants / stressors may be impairing water quality and the beneficial uses of a particular waterbody, but more data and further analysis is necessary before any conclusions can be made. These waterbodies and stressors have been classified as "Constituents \ Waterbodies of Potential Concern" and are listed in Table 5. Listing was not deemed appropriate for one or more of the following reasons:

- ◆ Data contained very few samples, with only a few samples exceeding objectives or other applicable criteria.
- ◆ Data was not representative of year-round conditions (i.e. biased towards wet weather data).

- ◆ Data exceeded water quality objectives / criteria, however this constituent could not be linked to the beneficial uses of the waterbody.
- ◆ Regional Board believes that a problem exists, but data is missing or inadequate to support a Section 303(d) listing.

If a waterbody or a constituent is not 303(d) listed or listed as a Constituent of Potential Concern, it is considered to have little available data. The following assumptions have been made of waterbodies and constituents not on either list:

- ◆ The constituent was not measured.
- ◆ Available data pertaining to a particular constituent was never received by the Regional Board.
- ◆ Data showed little or no evidence of exceeding water quality objectives / criteria.
- ◆ Sample size was too small for assessment.

In the next few months, staff will begin compiling a comprehensive inventory and assessment of all waterbodies in the San Diego Region pursuant to Section 305(b) of the Clean Water Act. This process is known as the state's "Water Quality Assessment" and results in the Section 305(b) list of waterbodies for the Region.

Corrections and Clarifications to the 1998 Section 303(d) List

Minor corrections or clarifications have been made to the 1998 list of impaired waters to more accurately describe the listed sites. These corrections/clarifications are reflected in Tables 1 and 4 to ensure that none of the old, incorrect or unclear information is promulgated. They reflect either minor corrections to wrong, misleading or unclear information or ensure language consistency with the 2002 Update. These changes are different from new listings or de-listings and are described below.

The impairment for Rainbow Creek has been changed from "eutrophication" to "nitrate and phosphorus." The original designation was based upon a faulty assumption that eutrophic conditions existed because of the elevated levels of nutrients. Data collected for development of the TMDL has revealed that eutrophic conditions do not exist, but concentrations of nitrate and phosphorus in excess of Basin Plan objectives do exist.

All previous listings of “High Coliform Count” have been changed to “Bacterial Indicators.” This ensures consistency between the 1998 List and the 2002 Updated List. For 1998 listings, Bacterial Indicators implies that impairment was due to fecal coliform, total coliform, or both. For the 2002 update, Bacterial Indicators implies impairment was due to fecal coliform, total coliform, enterococci or a combination of any of the three. In the San Diego Region, enterococci measurements commenced in 1999.

The 1998 beach and bay shoreline bacterial listings are designated by hydrologic unit (HU), hydrologic area (HA) or hydrologic subarea (HSA). These descriptions provide little information about the actual segment or extent of the impairment. The 1998 list, as adopted by the Regional Board, contained specific segments of impairment. These specific segments were omitted from the final statewide list adopted by SWRCB and the USEPA. To better identify the exact locations of the impairments, the specific segments are now listed within each larger HU, HA or HSA designation.

Two issues have been corrected that affect the extent of impairment for beach and bay shoreline listings. First, in 1998, unless more information was available, the extent of impairment was assumed to be 0.01 miles for each storm drain or creek outlet or for each segment of shoreline. This applied to each unique segment of known contamination. For the 2002 update, the extent of impairment has been increased to 0.4 miles for each unique segment, unless more information was available. If the 1998 extent of impairment was larger than 0.4 miles, no change was recommended. Extents of impairment for each individual segment have been summed to provide the total extent of impairment within the larger hydrologic listing. Often, the individual segments within a single listing are closer than 0.4 miles apart. In these cases, the total extent of impairment for each listing is less than the sum of all individual segments and takes overlapping spatial extents into account.

Secondly, several specific segments described in the 1998 list were inadvertently placed within incorrect hydrologic boundaries. These individual segments have been placed into the correct hydrologic boundaries. Placing these specific segments in the correct hydrologic boundaries results in modification to the extents of impairment for several coastal bacterial listings. This also resulted in the renaming of the “Pacific Ocean, Laguna Beach HSA” listing to “Pacific Ocean, Laguna Beach and San Joaquin Hills

HSAs” and the renaming of “Pacific Ocean, San Clemente HA” to “Pacific Ocean, San Clemente, San Mateo and San Onofre HSA.” These changes correctly define the hydrologic subareas where impairment was found.

The renaming of “San Diego Bay, Downtown Piers” is another recommended name change. The suggested new name is “San Diego Bay, Vicinity of B Street and Broadway Piers.” This change adds clarification to the location of impairment as evidenced by degraded benthic communities and sediment toxicity.

The specific locations of impairment due to lead and eutrophication in Mission Bay are now specified as “Rose and Tecolote Creek Mouths.” Each location accounts for ½ of the 1 acre listed as impaired. These specifications come from interpretation of the 1996 Section 303(d) Fact Sheet (SWRCB, 1996) in support of that years’ listing of Mission Bay.

The TMDL scheduling dates presented in Table 1 have been updated to reflect the current estimated start and completion dates. These dates are subject to change after USEPA approval of the final 2002 Section 303(d) list of impaired waters.

Updates to the 1998 list that Do Not Constitute New Listings or De-listings

As mentioned previously, the 1998 Section 303(d) list, as adopted by the Regional Board, contained specific segments of impairment. These specific segments were omitted from the final statewide list adopted by SWRCB and the USEPA. In an attempt to better identify the exact locations of impairment, Tables 1 and 4 have been modified to include previously missing information. While modifying the Tables, two segments were never successfully identified. These segments were listed in 1998 as “La Ladera,” and “Salem Tressel.” Since these segments cannot be currently placed, the Regional Board has removed them from the draft 2002 List Update.

The 1998 beach and bay shoreline bacterial listings are designated by hydrologic unit (HU), hydrologic area (HA) or hydrologic sub area (HSA). Applying listing criteria developed for the 2002 List Update, which is described in Appendix B, pgs B-69 to B-74, resulted in expanding the number of segments in the previously listed hydrologic areas. The segments of South Capistrano Beach at Beach Road, San Mateo Creek outlet,

Ocean Beach at Bermuda Avenue, San Diego Bay at Kellogg Street, Shelter Island Shoreline Park and Tidelands Park are new, additional segments within previously listed hydrologic areas. They are not newly recommended listings. For example, the hydrologic sub area of 901.27 (Lower San Juan HSA) was previously listed in 1998. However, the specific segment of South Capistrano Beach at Beach Road (also HSA 901.27) was not included. Adding these specific segments results in a recommended increase in the extent of impairment of previously listed waterbodies.

In contrast, new Section 303(d) beach and bay bacterial listings are those that do not exist within the hydrologic boundaries specified in the 1998 listings, or are within previously listed hydrologic boundaries but are considered distinct waterbodies from those previously listed. Dana Point Harbor at Baby Beach and Pacific Ocean Shoreline: Torrey Pines State Beach at Los Penasquitos Lagoon outlet are newly listed waterbodies. Although the hydrologic subarea 901.14 (Dana Point HSA) was previously listed, the segment specified in 1998 consisted of Pacific Ocean shoreline. Dana Point Harbor at Baby Beach is considered a distinct waterbody, and is therefore a new listing. While the hydrologic area 906.10 (Miramar Reservoir HA) was on the 1998 Section 303(d) list, the Pacific Ocean Shoreline waterbody was not listed within this hydrologic boundary. Therefore, Pacific Ocean Shoreline: Torrey Pines State Beach at Los Penasquitos Lagoon outlet is also a new listing.

Conclusion

The draft Section 303(d) list of impaired waters update presented in this document is only a recommendation from the California Regional Water Quality Control Board, San Diego Region. It is the State Board that will conduct the formal public process and it is the State Board that will adopt a single, statewide list to forward to the USEPA. Board Members of the California Regional Water Quality Control Board, San Diego Region have not approved this document. Comments, updates and modifications can continue to be made by the Regional Board and the public throughout the State Board's upcoming formal public review and comment period.

References

- Ad Hoc Workgroup, 1997. 1998 Clean Water Act (CWA) Section 303(d) Listing Guidelines for California. Workgroup Summary Document published August 11, 1997. State Water Resources Control Board.
- Federal Register, May 2000. California Toxics Rule. 40CFR Part 131, Federal Register May 18, 2000, pages 3162-31719.
- Haile, Robert W., John S. Witte, Mark Gold, Ron Cressey, Charles McGee, Robert C. Millikan, Alice Glasser, Nina Harawa, Carolyn Ervin, Patricia Harmon, Janice Harper, John Dermand, James Alamillo, Kevin Barrett, Mitchell Nides, and Guang-yu Wang, 1999. "The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff." *Epidemiology* 10:355-363.
- Marshack, J. B., 2000. A Compilation of Water Quality Goals, California Environmental Protection Agency, Regional Water Quality Control Board Central Valley Region.
- Metcalf and Eddy, 1991. Wastewater Engineering: Treatment, Disposal and Reuse, 3rd Edition, McGraw-Hill, Inc., 1334 pages.
- SDRWQCB, 1994. Water Quality Control Plan for the San Diego Basin (9), California Regional Water Quality Control Board, San Diego Region.
- State of California, 2001. California Code of Regulations, TITLE 17, Section 7958. Bacteriological Standards
- State of California, 2001. California Code of Regulations, TITLE 22. Social Security Division 4. Environmental Health Chapter 15. Domestic Water Quality and Monitoring Regulations, Articles 4 and 16.
- State of California, 2000. Regulations and Guidance for Beaches. Appendices-- Draft Guidance for Salt- and Fresh Water Beaches, Department of Health Services.
- SWRCB, 1968. Resolution Number 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California, State Water Resources Control Board.
- SWRCB, 1996. General File 77-0118.02, File:1, 08/95 – 12/96. California Regional Water Quality Control Board, San Diego Region.
- SWRCB, 1997. Water Quality Control Plan for Ocean Waters of California, State Water Resources Control Board.
- SWRCB, 2000. Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, State Water Resources Control Board.
- USEPA, 1997. National Clarifying Guidance For 1998 State and Territory Clean Water Act Section 303(d) Listing Decisions, United States Environmental Protection Agency.